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PATENT APPLICATION

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IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Nanette C. Jensen, et al. **Confirmation No.:** 9811

Application No.: 09/855,208 **Examiner:** West, Jeffrey R.

Filing Date: May 14, 2001 **Group Art Unit:** 2857

Title: System and Method for Determining Light Source Current

Mail Stop Appeal Brief-Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF REPLY BRIEF

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Transmitted herewith ~~is~~ is the Reply Brief with respect to the Examiner's Answer mailed on 09/09/2005. This Reply Brief is being filed pursuant to 37 CFR 1.193(b) within two months of the date of the Examiner's Answer.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

In re the application of: Nanette C. Jensen, et al.	Confirmation: 9811
Application Number: 09/855,208	Art Unit: 2857
Filing Date: May 14, 2001	Examiner: West, Jeffrey R.
Title: SYSTEM AND METHOD FOR DETERMINING LIGHT SOURCE CURRENT	Docket No.: 10013325-1
	Appeal Number: _____

REPLY BRIEF UNDER 37 CFR §41.41

Mail Stop Appeal Brief—Patents
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Sir:

This is a Reply Brief to the Examiner's Answer from Examiner Jeffrey R. West, Group Art Unit 2857, of September 9, 2005, with respect to the rejection of claims 1-20 in the present patent application.

I. STATUS OF CLAIMS:

Claims 1-20 are currently pending in the present application. The Final Office Action mailed on December 28, 2004 rejected claims 1-4, 7-10, 13-16, 19, and 20 under 35 U.S.C. §103(a) as being unpatentable over US Patent 5,902,994 to Lisson et al. in view of US Patent 4,945,225 to Gamgee and US Patent 6,642,492 to Shiota et al. Also, claims 5, 6, 11, 12, 17, and 18 have been rejected under 35 U.S.C. §103(a) as being unpatentable over US Patent 5,902,994 to Lisson et al. in view of US Patent 4,945,225 to Gamgee and US Patent 6,642,492 to Shiota et al, and further in view of US Patent 4,982,203 to Uebbing et al. Applicants appeal the decision of the Examiner in rejecting claims 1-20. For the reasons set forth herein, Applicants respectfully submit that the rejection of the pending claims 1-20 should be overturned by the Board of Patent Appeals.

II. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL:

Claims 1-4, 7-10, 13-16, 19, and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over US Patent 5,902,994 to Lisson et al. in view of US Patent 4,945,225 to Gamgee and US Patent 6,642,492 to Shiota et al. Also, claims 5, 6, 11, 12, 17, and 18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over US Patent 5,902,994 to Lisson et al. in view of US Patent 4,945,225 to Gamgee and US Patent 6,642,492 to Shiota et al, and further in view of US Patent 4,982,203 to Uebbing et al.

III. ARGUMENT:

Claims 1-4, 7-10, 13-16, 19, and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over US Patent 5,902,994 to Lisson et al. (hereafter "Lisson") in view of US Patent 4,945,225 to Gamgee (hereafter "Gamgee") and US Patent 6,642,492 to Shiota et al. (hereafter "Shiota"). Also, claims 5, 6, 11, 12, 17, and 18 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Lisson in view of Gamgee and Shiota, and further in view of U.S. Patent 4,982,203 issued to Uebbing et al. (hereafter "Uebbing"). The following discussion further expounds upon the misinterpretation of Gamgee by the Examiner in rejecting claims 1- 20 in

response to the Examiner's Answer of September 9, 2005. In particular, Applicants wish to further explain how the Examiner has misinterpreted the fair teachings of *Gamgee* in order to generate the rejection of the claims.

To begin, at page 9 of the Examiner's Answer, in addressing issues identified by the Applicants, the Examiner states:

> "The Examiner first asserts that the invention of Gamgee does not describe the interpretation by Appellant in which the designers of the circuitry provide a known saturation to prevent the saturation level from being reached. In fact, Gamgee specifically states:
>
> > "the sensing means being operable to generate an output signal of a magnitude related to the incident radiation up to a saturation level of the output signal, and increase in incident radiation level beyond a radiation level necessary to produce said saturation level do not produce significant changes in magnitude of the output sensing signal, the discriminating apparatus being operative over a range of radiation background signal intensities which can be sufficient to cause the output signal to reach the saturation level without adjustment of the operating point of the sensing means, the discriminating apparatus including a compensating circuit operative in response to any variation in background radiation [ ]intensity level within a desired range to adjust the operating point of the incident radiation sensing means so as to maintain the level of the sensing signal below the saturation level" (column 1, line 61 to column 2, line 10).
>
> This section of Gamgee explicitly indicates that the apparatus is operative "to cause the output signal to reach the saturation level: and indicates that once this saturation level is detected, the compensating circuit will then be operative to maintain the signal below the saturation level." (Examiner's Answer, page 9.)

First, Applicant has not stated that the designers "provide a known saturation to prevent the saturation level from being reached" as stated above. Rather, Applicants stated that the saturation level of a sensor is known and the compensation circuitry is designed to avoid the saturation of the sensor. Applicants assert that this is inherent in the discussion of *Gamgee*.

In addition, Applicants wish to draw attention to the primary portions of the excerpt quoted from *Gamgee* by the Examiner above as follows:

> "The sensing means being operable to generate an output signal of a magnitude related to the incident ***radiation up to a saturation level of the output signal***, ... the discriminating apparatus

> including a compensating circuit ***operative in response to any variation in background radiation intensity level*** within a desired range to adjust the operating point of the incident radiation sensing means **so as to maintain the level of sensing signal below the saturation level**..." (*Gamgee*, Column 3, lines 5-16.)

The Examiner misinterprets the above statements as describing the detection of saturation and then operating the circuit once saturation is detected. However, the above-cited section of *Gamgee* simply states that the sensing means generates an output signal that varies in magnitude in response to the intensity of the incident radiation up to the saturation level of the sensor. In this respect, *Gamgee* merely points out that circuits operate and have levels of saturation, which is described in the present patent application.

In addition, the Examiner stated that the section of *Gamgee* explicitly indicates that the apparatus is operative "to cause the output signal to reach the saturation level" and indicates that once this saturation level is "detected", the compensating circuit will then be operative to maintain the signal below the saturation level." (Examiner's Answer, page 9.) The Examiner takes the simple description of limits to the operation of circuit as indicating that the saturation level is "detected" as set forth in the claims. However, Gamgee merely acknowledges that circuits become saturated once the signal ranges move beyond their window or operation.

The Examiner implies that somehow once signals are "detected", then the compensating circuit operates to maintain the signal below the saturation level. However, this is a distortion of the actual teachings of *Gamgee*. Specifically, the compensating circuit described by *Gamgee* operates in response to variation in background radiation intensity level. This reflects the fact that the radiation that falls incident to the sensor of *Gamgee* includes an information signal component and an unwanted background radiation component that results from ambient light, etc. (i.e. see *Gamgee*, Column 1, lines 28-46)

The compensation circuit compensates the operation of the sensor so that the background radiation does not cause saturation of the circuit, thereby hampering the ability to discriminate the information signal component from other unwanted portions of the incident radiation. No detection of a saturation level is performed. Rather, the compensating circuit operates to minimize or eliminate the effect of the incident background radiation. It is assumed that the information signal component

will not saturate the circuit based on the design. For example, *Gamgee* states at column 1, line 17-23, *Gamgee* states:

> "The interrogator means is used with one or more transponders, each of which includes a light receiver or sensor and a circuit for distinguishing light received from the light source of the interrogator means from ambient background light."

In addition, *Gamgee* states in column 1, lines 35-42:

> "It is an object of the present invention to provide information signal discriminating apparatus which is effective in operation and which is usable in differing environments and particularly for use in discriminating an incident radiant information signal over a range of background radiation levels. This will enable use of the apparatus where the background radiation level varies substantially."

In addition, at column 3, lines 17-33, *Gamgee* states:

> "In the case of discriminator apparatus for use in an identification system, the radiant information signal may be a light signal, such as infrared radiation although it will be appreciated that other wavelengths of electromagnetic radiation may be equally applicable. The radiation sensing means 20 is illustrated as a photo diode 25 which operates as a current source, the output current of the photodiode 25 depends on the incident radiation intensity. In this particular embodiment, the compensating circuit 26 comprises a load compensating circuit 27 operative in response to any variations in background radiation intensity level within the desired range to adjust the load on the sensing means 20 (photodiode 25) so that the output sensing signal 21 of the radiation sensing means 20 remains below its saturation level throughout the desired range of background radiation levels."

In this respect, the compensating circuit 26 does not detect the saturation level as assumed by the Examiner, rather it simply allows the system to distinguish between an information signal component and a variable background component of an input signal generated from incident background radiation. In this respect, the compensating circuit does not detect saturation; it merely is designed to allow the circuits to operate such that the background light that falls upon the sensor does not cause the ultimate circuit to be saturated.

With this in mind, Applicants assert again that *Gamgee* does not address the situation where the desired radiant signal potentially would saturate the sensor. In addition, *Gamgee* fails to recognize that the saturation level of the sensor itself may vary over time. As such, the information signal portion of the input radiant signal that is distinguished from the background portion by the compensation circuit of *Gamgee*

may actually still cause saturation if the desired signal taken alone without the background signal causes such saturation assuming the saturation level of the sensor drifts unfavorably over time.

Thus, the statement that *Gamgee* "explicitly" indicates that the apparatus is operative to cause the output signal to reach the saturation level ignores the fact that *Gamgee* is merely stating the fact that saturation levels exist and that the background radiation added to the incident radiation of interest may cause saturation to occur. Also, the statements by the Examiner that *Gamgee* explicitly "indicates that once the saturation level is detected, the compensating circuit will then be operative to maintain the signal below the saturation level" ignores the fact that the saturation level is never detected, rather the circuit is simply designed to minimize or eliminate the effect of background light the would normally result in saturation of the circuit. Thus, in rejecting the claims, the Examiner's statements of the teachings of Gamgee in this respect do not represent a reasonable interpretation of the fair teachings or suggestion of *Gamgee*.

In addition, on page 10, the Examiner states as follows:

> "The Examiner also maintains that the invention of Gamgee teaches a method for detecting saturation wherein a "sensing means 20 generates, in response to incident radiation 10, an output signal 21 of magnitude related to the incident radiation level up to a saturation level of the output signal 21, beyond which saturation level, any changes in incident radiation level do not produce significant changes in magnitude of the output sensing signal 21." (Examiner's Answer, page 10.)

The Examiner's statement that *Gamgee* "teaches a method for detecting saturation" simply reads far too much into the above quoted statement from *Gamgee*. Specifically, *Gamgee* merely states that "the output of a sensor varies with the intensity of incident radiation level up unto a point that the sensor is saturated. In addition, the statement merely indicates that once saturation of a sensor is reached, then incident radiation levels that change do not ultimately change the output of the sensor.

However, the mere statement that sensors saturate does not show or suggest active detection of such saturation levels. In addition, *Gamgee* is completely silent with respect to the fact that the saturation levels of sensors can vary over time. Active detection of the saturation level of sensors according to the various embodiments of the present invention make sure that sensors are operating in a

useful range and do not become saturated during scanning functions thereby rendering imperfect scans. In fact, in the present specification, sensors may be eliminated from consideration entirely if saturation cannot be avoided, as the sensors become defective over time.

In the next paragraph, the Examiner then states:

> "This section of Gamgee first indicates that the sensing means generates a first output signal related to a first incident radiation by stating that "in response to incident radiation 10, an output signal 21 of magnitude related to the incident radiation level" is produced." (Examiner's Answer, page 10.)

The fact that the sensors of *Gamgee* generate an output is of no consequence. All sensors generate outputs. However, the Examiner then states:

> "This section of Gamgee then discloses that the sensing means generates a second output and a plurality of subsequent output signals, related to a second incident radiation and a plurality of subsequent incident radiations, and repeats the process up until a saturation level is detection [sic], specifically, by generating a plurality of output signals in response to the plurality of input radiations "up to a saturation level of the output signal." (Examiner's Answer, page 10.)

The statement of Examiner that *Gamgee* then discloses "that the sensing means generates a second output and a plurality of output signals, related to a second incident radiation and a plurality of subsequent incident radiations and repeats the process up until a saturation level is detected" is simply incorrect. *Gamgee* simply employs a light sensor that receives incident light and generates a signal therefrom, this signal having two components, mainly an information signal component and an unwanted background component. The compensating circuit minimizes or eliminates the effect of the background light so that the circuitry, thereby discriminating between the information signal component and the background component.

The statement that *Gamgee* "repeats the process up until a saturation level is detection" is simply incorrect. *Gamgee* does not teach taking repeated measurements of radiation as the Examiner contends. Also, since the compensating circuit of *Gamgee* operates to minimize or eliminate the effect of background light, the sensor can operate within normal parameters without saturation as described. There is no need to detect saturation as the circuit is designed to avoid it. Also, as Applicants have stated above, it might be the case that the desired information signal

itself may saturate the circuit due to drifting saturation levels over time. *Gamgee* does not address this potential problem.

Also, the Examiner states:

> "This section of Gamgee also discloses that the saturation level is detected by determining when a difference between the first and second incident radiation levels does not produce a significant difference between the magnitudes of the first and second output signals, specifically, by determining when "beyond which saturation level, any changes in incident radiation level do not produce significant changes in magnitude of the output sensing signal 21" (i.e. there is no significant difference between two sequential output signal magnitudes)." (Examiner's Answer, pages 10-11.)

Applicants again assert that no where does *Gamgee* disclose that the saturation level is detected by determining the difference between first and second incident radiation levels. The discriminating circuit of *Gamgee* allows two different components of a given incident radiation signal to be differentiated. Claims that *Gamgee* actually describes detecting the saturation level as set forth above simply represents an unreasonable extension of the teachings of *Gamgee*.

Nonetheless, the Examiner further states:

> "Further, in order to determine whether the difference between the magnitudes of the first and second output signals is/is not significant, it is considered inherent that the difference must be compared to some type of threshold to indicate that the difference is/is not significant since in order to determine the significance of the difference, some measure of significance must be provided as a reference for comparison (i.e. a threshold)." (Examiner's Answer, page 11.)

Applicants assert that the above statements are simply not based in any reasonable interpretation of *Gamgee*. There is no comparison of the difference between measurements of light with thresholds. Such is not inherent since the circuit described avoids saturation in the first place. Once the circuit is designed, there is no need to perform differences.

In light of the foregoing, Applicants assert that a close and accurate reading of *Gamgee* reveals that the Examiner's contentions with respect to the teachings of Gamgee are simply incorrect. *Gamgee* consists of only four columns of detailed description and two partial columns of claims. Applicants respectfully invite the Board to read the entire text of *Gamgee* and determine for itself where the alleged

repeated measurements and detection of the saturation level in this respect are described or suggested as the Examiner contends.

In addition, the Examiner states as follows:

> "The Examiner asserts that in the invention of Gamgee the saturation point is detected by determining a saturation level "beyond which saturation level, any changes in incident radiation level do not produce significant changes in magnitude of the output sensing signal 21." Therefore, each time the output signal is monitored for determining when a significant change is not produced, a new saturation level may be determined. Further, the Examiner asserts that while the invention of Gamgee does teach this situation, a lack of this teaching would not teach away from the claimed invention since there is nothing in the invention of Gamgee that teaches a feature contradicting to the invention as claimed." (Examiner's Answer, page 12.)

The Examiner further states that *Gamgee* thus does not teach away from the current invention as claimed. However, Applicants assert that given that the compensating circuit of *Gamgee* avoids saturation altogether by design rather than detecting a saturation level as claimed in the present application, then Applicant maintains the position that *Gamgee* teaches away from the present claimed invention. *Gamgee* does not even take into account whether the information signal component that strikes the photosensor might actually still saturate the sensor given that the saturation level of the sensor may vary over time.

Thus, *Gamgee* does in fact teach away from trying to detect the saturation level as set forth by the claims of the present invention as it necessarily implies that saturation levels of sensors do not change over time. Specifically, compensation for the background light is all that is addressed. Thus, Applicants assert that again *Gamgee* teaches away from the invention as claimed.

Still further, on page 13, the Examiner states:

> Appellant's arguments regarding hindsight reconstruction is not persuasive since it has been held that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443. F.2d 1392, 170 USPQ 209 (CCPA 1971)." (Examiner's Answer, page 13.)

Applicants agree with the statement that hindsight reconstruction is not necessarily improper so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made and does not include knowledge gained only from the Applicants' disclosure is correct. However, Applicants assert that one skilled in the art at the time the invention was made would not understand *Gamgee* as teaching all of the elements as set forth by the Examiner in the various rejections above to which this Appeal is made. It is the unreasonable interpretation by the Examiner that is necessarily based on hindsight since one skilled in the art without knowledge of the claims of the present patent application could never appreciate *Gamgee* as teaching all of the elements of the claims of the present application as set forth by the Examiner.

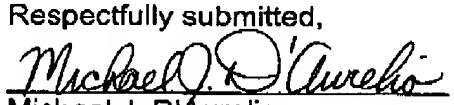
Accordingly, in light of the foregoing, Applicants once again assert that the rejection of claims 1-4, 7-10, 13-16, 19, and 20 by the combination of references including Gamgee is improper and requests that the rejection of such claims be overturned. Also, to the extent that claims 5, 6, 11, 12, 17, and 18 are also rejected by a combination of references including Gamgee, Applicant requests that the rejection of these claims be overturned as well. In addition, Applicant requests that the rejection of claims 1-20 be overturned in view of the reasons offered in the Appeal Brief filed on June 17, 2005.

IV. CONCLUSION:

In view of the foregoing, Applicants once again assert that claims 1-20 are in proper condition for allowance, and the Board is respectfully requested to overturn the Examiner's rejections of these claims.

Authorization is provided in the documents accompanying this Reply Brief to charge Applicant's deposit account for any fees due in accordance with this submission. If any additional fees are required for this Reply to be considered, Applicant hereby authorizes the Board to charge any additional fee that may be required to deposit account 08-2025.

Respectfully submitted,



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